

**RESTORATION ADVISORY BOARD MEETING  
NAS BRUNSWICK, MAINE**

January 21, 1999

ATTENDEES:

<u>NAME</u>	<u>ORGANIZATION</u>	<u>PHONE/FAX</u>
Emil Klawitter	Northern Division	
Jason Speicher	Northern Division	
Tony Williams	NAS Brunswick	
John James	NASB Dir. Public Affairs	
Mike Barry	USEPA	
Claudia Sait	MEDEP	
Larry Dearborn	MEDEP	
Carolyn Lepage	BACSE Tech. Advisor	
Tom Fusco	BACSE	
Steve Mierzykowski	U.S. Fish & Wildlife Service	
Ed Benedikt	Bruns. Conservation Commission	
Peter Nimmer	EA Engineering	
Sue Chase	EA Engineering	
Alastair Lough	Gannett Fleming	
Aaron Smith	Brunswick Times Record	
Jeff Brandow	Harding Lawson Associates	

MEETING DATE: January 21, 1999, 9:00 a.m.

MEETING LOCATION: Fleet Bank, Maine Street, Brunswick, ME

I. INTRODUCTION

Emil Klawitter (NORTHDIV) opened the Restoration Advisory Board (RAB) meeting. Before getting to the agenda, Emil announced that he had checked with the office of Chief, Naval Operations on the availability of funding for Tom Fusco of the Brunswick Area Citizens for a Safe Environment (BACSE) to attend the national Coordination of RABs meetings. Unfortunately, the answer was that the Navy would not provide funding for this purpose.

Emil asked if there were any additional topics to add to the agenda. Larry Dearborn (MEDEP) indicated he would like to discuss the list of monitoring wells that are identified as background wells for the NAS Brunswick IR program.

## II. SCHEDULE FOR CALENDAR YEAR 1999

Emil stated that he had decided not to distribute a formal schedule at this time. The schedule keeps changing based on issues that are brought up at our meetings, so he would like to hold off until after some of the issues at Site 9 are resolved. The Navy has scheduled a meeting for February 1, 1999 to discuss Site 9. After that, the Navy will prepare and distribute a revised schedule.

## III. BUDGET UPDATE FOR FISCAL YEAR 1999

The Department of Defense has been reviewing expenditures due to the recent activities in the Middle East. This type of unexpected spending often results in cuts to environmental budgets. The Navy has not seen any impacts yet on NAS Brunswick's IRP budget, and currently doesn't expect any. The RAB should be aware, though, that this could change. NAS Brunswick should be in good shape, since funding for operations and maintenance activities such as are underway here generally receives higher priority. The NAS Brunswick IRP budget for fiscal year 1999 is \$2.2 million.

Tom Fusco said it is frustrating that environmental spending always gets such low priority in these situations. He would much rather see the Navy delay the construction of a warship to save money. Emil said that these are policy decisions that are very hard to influence at his level. Tom said that this is the type of issue that could be dealt with more effectively by a national organization of RABs. Cleanup needs to be a priority, not just a convenient place to raid money from to offset unexpected military spending.

## IV. SITE 7

Site 7 is a former acid/caustic waste disposal area that was evaluated during the original RI/FS in 1988-89. On the basis of the findings of the RI/FS, the Navy has recommended no further action for this site. Issues that have been brought up at previous meetings include cadmium hits above MCLs/MEGs at two of the monitoring wells, questions about the risk assessment, and whether PCB sampling was conducted during the RI.

Emil said that the risk assessment looked at surface soil, and compared the contaminant concentrations to unrestricted access levels. There were a few polycyclic aromatic hydrocarbons (PAHs) detected, but risks were determined to be within the acceptable range. The PAH levels in subsurface soil samples were even lower, so the Navy concludes there is no unacceptable risk.

Claudia Sait (MEDEP) said the State is still concerned about the cadmium detections in groundwater. There was apparently no groundwater risk assessment done. Also, the State would like the Navy to re-sample the wells, since the available data is 10 years old.

Carolyn Lepage said that, without institutional controls, the past data showing exceedances of drinking water standards should mean that a "no further action" decision is not acceptable.

Emil said that the State has asked for an additional monitoring well to be installed downgradient of the source area, but since the soil investigation did not encounter any concentrations of concern, the Navy doesn't know of an appropriate location to place an additional well. Larry Dearborn replied that he would like to see a new well immediately downgradient of the area where the test pits were concentrated. Emil reiterated that the soil concentrations in those test pits did not reveal any contamination at levels of concern. Carolyn said that in her opinion, the very nature of the wastes disposed (acids) could have mobilized metals from that area. Larry agreed with this. Claudia observed that the area around Site 7 looks stressed, with no small trees, just grass and weedy

growth. Tony Williams (NASB) said that aerial photos show the area as being open all the way back to before the runway was built.

Ed Benedikt asked what it would cost to re-sample the existing wells. Emil replied that it might cost several thousand dollars, since the wells would have to be inspected and re-developed before we sampled them. Tom Fusco pointed out that Carolyn and Larry seemed to be asking for new wells. Larry replied that the Navy needed a better downgradient location. Emil again stated that we don't know of any source area to place a new well downgradient of. But Claudia said that if the Navy does put a new well downgradient of the test pit area and there is no impact, then it would be easier for the State to agree with no further action. She said the State feels strongly that we cannot go for no further action when the only groundwater data shows exceedances of drinking water standards.

Tom Fusco stated that it appeared the Navy and MEDEP needed to put their heads together and resolve the groundwater issue at a future meeting. Mike Barry (USEPA) agreed, saying that the soil was not an issue, but since the last data we have shows cadmium exceedances, the groundwater issue still needs to be resolved. Emil said the Navy may be willing to re-sample the existing wells, but would do so for metals only.

Tom said that the lack of vegetation is an interesting observation, and would like to know why it is that way. Peter Nimmer (EA) said there has been some limited mowing to provide access to the monitoring wells. Steve Mierzykowski (US Fish & Wildlife) said it wouldn't take much of a site walk to make an initial judgement on the vegetation. He pointed out that if you have enough contamination to affect vegetation, there would usually be other indications of the contamination. It was agreed that a site walkover would be conducted in the spring.

## V. BUILDING 95

Emil said that the Navy was still trying to figure out how to address subsurface soils that contain pesticides at levels exceeding ecological risk levels. The ecological risk-based target cleanup level was only applied to the top two feet of soil during the removal action. The Navy does not want to place institutional controls on the Building 95 site

Steve Mierzykowski said that he hadn't considered this site to be a high eco-risk problem to begin with, and with the remediation work completed, he doesn't think it is a significant risk to ecological receptors in its current condition. Tom Fusco then asked, "what if it is dug up"? Steve replied you would then have a different situation that would have to be evaluated. Emil asked whether it made any sense to re-visit the ecological risk assessment, which he understands made use of some very conservative assumptions. Tom said he agreed with Steve that the site was o.k. as long as it gets left alone, and asked why the Navy doesn't just establish a restriction that says the top two feet of soil must be clean. Emil pointed out the problem is that someone then has to be responsible for enforcing the restriction forever. Carolyn asked what it would cost to re-visit the risk assessment. Emil thought it might cost around \$70,000 to \$100,000, perhaps less if the Navy could do some of it in-house. He did not know when he would be able to get it funded, though.

Claudia asked if we should move forward with a consensus statement for the Building 95 site. Mike Barry strongly urged that we do so, to document the things that have been agreed on. He then said this seems an appropriate situation for the use of institutional controls. Emil said that would mean the State would not view the remedial action as a clean closure, which would make compliance with the RCRA Closure Order more complicated, and might also result in mandated 30 years of groundwater monitoring. Claudia replied that the State is negotiable on those points. The discussions on the Building 95 site ended with no further resolution.

## VI. SITE 2 LTMP

Emil said that he is working to get EA Engineering under contract to prepare the long-term monitoring plan for Site 2, and that he hopes to have a draft available for RAB review some time in March. Larry asked if the plan will include the locations of new wells. Emil replied it will include one new well. If the State has a suggested location for the new well, Emil asked that they let the Navy know.

## VII. SITE 9 PROPOSED PLAN

The Navy is preparing responses to the comments received from RAB members, and is planning a meeting at EPA's Region I office on February 1 to discuss them. The Navy will then prepare a draft final proposed plan for final RAB review.

## VIII. EASTERN PLUME

### A. Extraction Well 3

Extraction well EW-3 has had some problems with turbidity. It was inspected and was found to contain 7-feet of silt, with more silt entering through the screen (seen with a down-hole camera). EA believes the sandpack may have failed. The Navy has shut down the well, and wants to look at the location of the well to see if it is worth repairing.

Larry asked if the pumping rates of the other wells can be increased to make up for EW-3 being shut down. Emil said that the Navy can take a look at that. He pointed out that EW-3 was not one of the better-performing wells, and the Navy wants to look at optimizing the overall extraction system, and then make adjustments that make sense. Larry and Mike both agreed with that concept.

### B. MW-311 Direct Push Results

Peter Nimmer handed out a summary of the findings from the recent direct-push investigation conducted in the monitoring well MW-311 area (Attachment 1). The handout includes a time-series plot of contaminant concentrations in the adjacent extraction well EW-2A. Mike supported the use of graphs to present data, saying it was much easier to use and interpret.

Pete briefly summarized the results of the direct-push sampling. The four points near the anticipated southern boundary of the plume had no exceedances of MCLs/MEGs. These data points were used to locate the new sentinel wells in that area. The sample points around MW-311 were to better define the extent of the hot spot. Shallow samples were clean, while the samples from the deep sand layer were contaminated, as expected. One sample was collected at the top of bedrock, and it showed no exceedances. Larry Dearborn asked the Navy to provide a description of the depths at which groundwater sampling was attempted during the direct-push investigation.

Alastair Lough (Gannett Fleming, consultant to EPA) asked if the results confirmed the interpretation in the RI that the sand layer was pinching out to the east of MW-311. Pete replied that the sand layer does appear to be pinching out. Emil said that the Navy will be asking EA to put together revised geologic cross-sections and a 3-D visualization of the site geology later this spring. Alastair said he wondered why the plume has remained stable instead of migrating as was predicted by the 1991 groundwater model. Peter replied that we now have a better

understanding of the bedrock surface, and there is a second bowl in the southern part of the Eastern Plume that may be limiting migration. Tony pointed out that the 3-D visualization will help in answering this question.

Claudia asked how the Navy would move forward with revisions to the long-term monitoring plan for the Eastern Plume. Emil said that the plan would continue to evolve, but the Navy will move ahead with it as it currently exists. Claudia said that was o.k., as long as we continue to make progress on the remaining issues. Mike agreed with the approach, saying that the plan needs to continue to be modified as appropriate. Also, the 5-year review process can be used to evaluate the appropriateness of the monitoring program.

#### C. Monitoring Event 13

Monitoring event 13 was completed in November 1998, and RAB members will be seeing the report by the end of January. Event 14 will take place in April 1999. EA's handout includes an overview of event 13. There were some unusual results in the surface water samples, with TCE showing up in the samples and in the blank. It is unusual to see TCE in a blank, since it is not a common laboratory contaminant. All agreed that it will be important to see what the next round of surface water samples shows.

#### D. System Optimization

The Navy wants to study optimization of the remedial action in three efforts: one looking at the extraction well network, one evaluating the treatment plant, and one assessing options for discharging the treated groundwater. The Navy's engineering group in Port Hueneme, California, will be looking at the extraction system as part of another Navy program, so that effort will not come out of the NAS Brunswick IR funding. The treatment plant currently uses a UV/oxidation process to treat the organics in the pumped groundwater, but the system does not achieve complete destruction of all of the organics. The Navy has asked EA to evaluate alternative treatment options which could get better destruction. The metals pre-treatment equipment will remain in place, even though it is not currently being used, in case the landfill extraction wells ever need to be reactivated. Discharge of the treated groundwater currently goes to the local wastewater treatment plant, with a high annual fee. If the Navy can modify the on-site plant to attain more complete destruction of organics, other options may be feasible for discharge. The Navy is also looking at the feasibility of performing analysis of groundwater samples on-site, to provide faster turn-around.

Tom Fusco asked whether any money saved by these optimization efforts would be used elsewhere in the NAS Brunswick environmental program. Emil said that he would push for that. He has been successful in doing that before, and believes there is a good chance he can argue for level funding.

Tony Williams stated that part of the effort to optimize the extraction system will be to evaluate the extraction wells for contaminant mass removal instead of hydraulic control. This could result in the Navy pumping less clean water through the treatment plant.

Ed Benedikt said he was confused by the Navy arguing against doing some things because of their cost, and yet here they are proposing spending money on more studies. Emil responded that these efforts have the potential for significant benefits to the Navy through future cost reductions, and views this as a good use of available funds. The Navy is willing to spend the money where it makes sense, but needs to spend the available funds in the best way possible to move the project forward. Ed said he thought the money would end up getting cut. Emil disagreed, saying he would like to see the budget go down only because we are approaching completion of the project. Tony added that the Navy needs to be able to show we are making progress toward site close-out.

#### E. Long Term Monitoring Plan Revision

The Navy would like to set up a separate meeting for RAB members to discuss the long-term monitoring plan for the Eastern Plume, and establish a process for making future revisions to the plan. Mike Barry said it is appropriate for the plan to be a living, evolving document. Perhaps it should undergo major revisions every 5 years to coincide with the program review process, with minor refinements occurring as necessary between revisions.

### IX. SITES 1&3

#### A. Water Level Gauging

The Navy had issued a proposal for how groundwater levels would be monitored in the landfill, to compare levels to the elevation of the bottom of the waste. Based on comments received, the Navy has re-thought its approach, and would like to get reactions from the RAB on the revised approach. Briefly, the Navy proposes that wells be gauged quarterly. If groundwater is found above elevation 35' msl (mean sea level), the Navy would prepare an engineering report within 45 days with recommendations. The 35-foot elevation is the Navy's best estimate of the depth of the bottom of waste, based on a review of boring logs. The reason for a 45-day window is to give the Navy a chance to re-gauge any of the wells if they think the data may be questionable.

Claudia said the State likes the new proposal, but would like to know if the Navy could estimate the total amount of waste buried in the area near monitoring well MW-234R. Emil said he would have to look at test pit data to see if there is enough information available to generate a volume estimate.

Emil said a decision to turn the extraction wells back on will not be automatic. If the gauging program indicates rising water levels, the Navy will want to look at the cause, and may recommend slurry wall investigations and repairs, rather than pumping.

Claudia said the State would like bi-monthly gauging this year instead of quarterly. Emil said it depends how many wells we are talking about. Larry asked what would trigger the start of the 45-day clock. Emil replied any well showing groundwater above 35' msl. This is based on the lowest observed elevation of waste in any of the boring logs, and thus is a conservative measure.

#### B. Slurry Wall Test

The Department of Energy will be using the slurry wall at Sites 1&3 to evaluate a new technology that uses a gaseous tracer to test the vapor permeability of a subsurface barrier above the groundwater table. The Navy has had discussions with EPA and the State regarding how the results of the test would be used, and agreed that decisions regarding the landfill would continue to be based on the water level gauging program, not on the results of this demonstration project. The work will start this week. Emil believes this type of cooperative effort helps keep the NAS Brunswick program more visible within the Navy, which may help during the funding process.

### X. OTHER ISSUES

1. Larry Dearborn said he had some concerns about some of the monitoring wells that are identified as background wells for NAS Brunswick. In particular, he doesn't like MW-801, which was completed in the silt/clay layer, and MW-211, which is next to the slurry wall. He felt these two wells had some elevated

metals, making them inappropriate as background wells. Emil said he would look at the issue, and prepare a response.

2. Tony mentioned that the mailing list for newsletters sent out by NAS Brunswick has not been updated in some time, except to delete addresses from which newsletters were returned undelivered. The Navy will try to come up with a way to bring its mailing list more up to date.

#### XI. FUTURE TECHNICAL AND RAB MEETINGS

The next quarterly RAB meeting is scheduled for Wednesday, April 21, 1999 at 9:00 a.m., at a location to be determined.

A technical meeting to discuss the Site 9 PRAP will be held on Monday February 1, 1999, at EPA Region I.

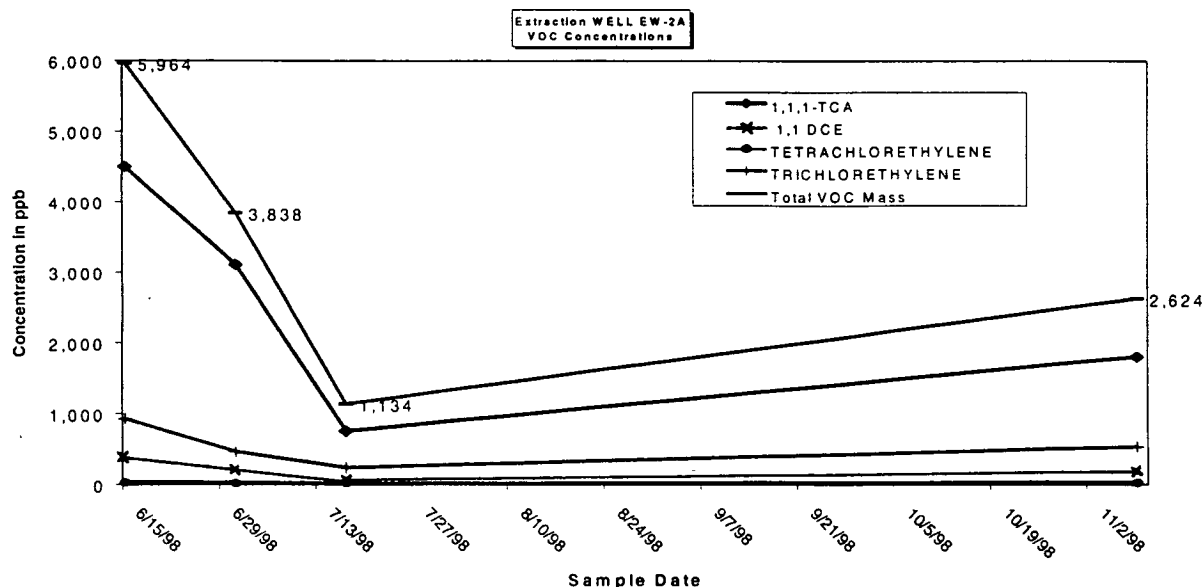
Additional technical meetings are tentatively scheduled for February 10 and March 3, at locations to be determined.

# ATTACHMENT 1

## RESTORATION ADVISORY BOARD MEETING NAVAL AIR STATION, BRUNSWICK, MAINE 21 JANUARY 1999

### EW-2A SAMPLE RESULT

- ◆ EW-2A has been sampled four times, including as part of Monitoring Event 13.
- ◆ VOC concentrations are shown below.



Analyte	6/15/98	7/1/98	7/17/98	11/9/98	MEG <sup>(a)</sup>	MCL <sup>(b)</sup>
<b>VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)</b>						
Benzene	(<25U)	(<25U)	2	1	5	5
1,1-Dichloroethane	51	37	24JD	44	70	---
1,1-Dichloroethene	420	200	60D	200D	7	7
Total 1,2-Dichloroethene	(<25U)	(<25U)	10	11	70	70
Tetrachloroethene	25	12J	17	18	3	5
1,1,1-Trichloroethane	4,500D	3,100D	750D	1,800D	200	200
Trichloroethene	930	460	240D	530D	5	5
Methylene chloride	27	28	18B	12B	---	5
1,2-Dichloroethane	10J	(<25U)	7	4	5	5
1,1,2-Trichloroethane	(<25U)	(<25U)	4	3	3	5
Chloroform	(<25U)	(<25U)	2	1	---	100
Total VOC	5,963	3,837	1,134	2,624	---	---
(a) State of Maine Maximum Exposure Guidelines.						
(b) Federal Maximum Contaminant Level.						
NOTE: U = Not detected. Sample quantitation limits are shown as (<___U).						
D = Analysis at a secondary dilution factor.						
J = Estimated concentration below detection limit.						



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**MW-311 DIRECT-PUSH SAMPLE RESULTS**

- ◆ Four direct-push points were installed south of MW-311 (DP-EP-01 through DP-EP-04) to define the southern extent of VOC impact.
- ◆ Three direct-push points were installed to assess VOC concentrations at the hot spot in the vicinity of MW-311 (DP-EP-05 through DP-EP-07).
- ◆ Sample results are shown on the attached table and figure.

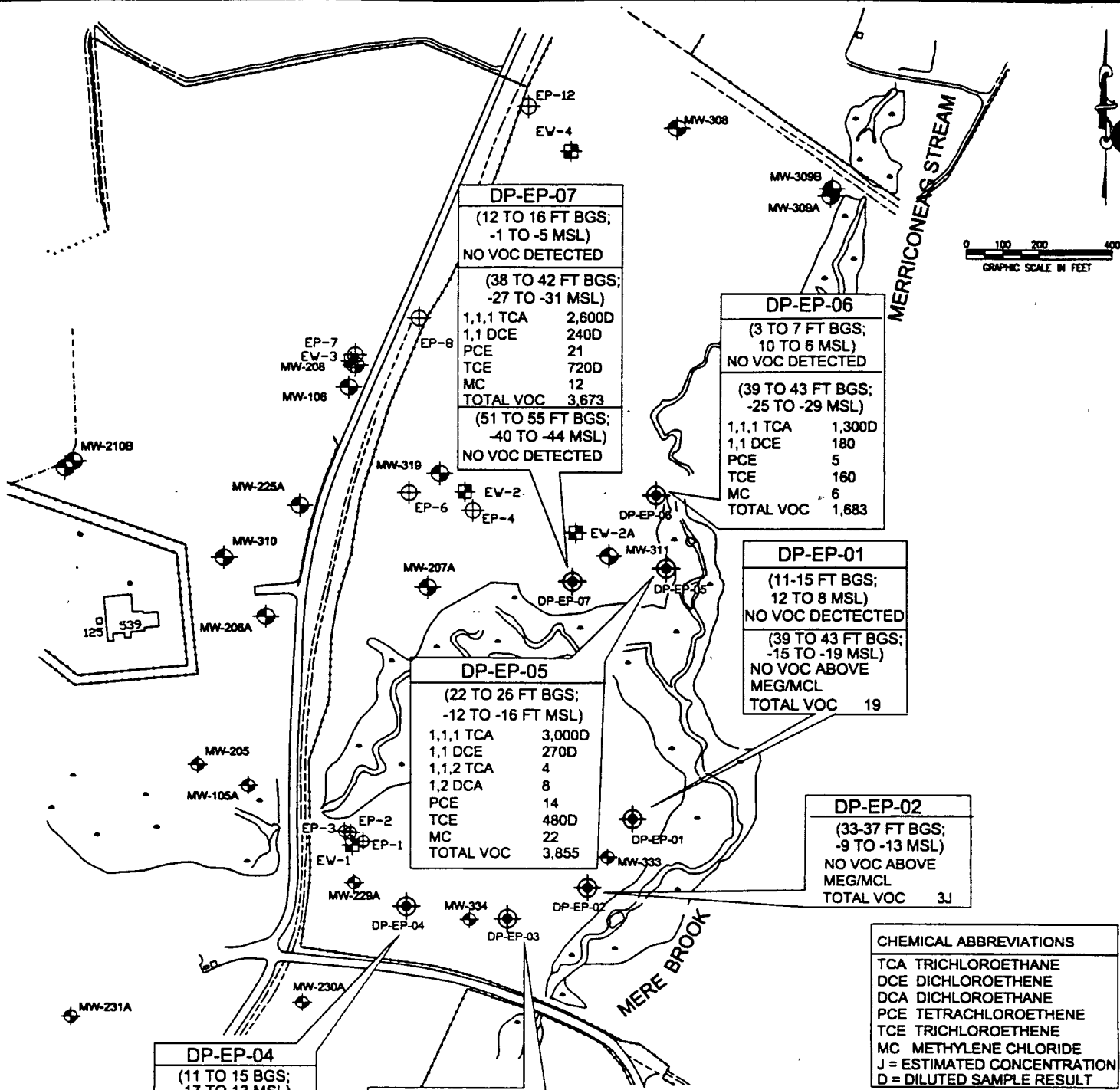
**RESTORATION ADVISORY BOARD MEETING**  
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ANALYTICAL RESULTS FOR DIRECT-PUSH SAMPLING CONDUCTED ON 15, 16, AND  
28 OCTOBER 1998, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	DP-EP-01 (11-15 ft bgs; 12.5 to 8.5 MSL)	DP-EP-01 (39-43 ft bgs; -15.5 to -19.5 MSL)	DP-EP-02 (33-37 ft bgs; -8.6 to -12.6 MSL)	DP-EP-02 DUP (33-37 ft bgs; -8.6 to -12.6 MSL)	DP-EP-03 (78-81 ft bgs; -51.7 to -54.7 MSL)	DP-EP-04 (11-15 ft bgs; 17.1 to 13.1 MSL)	DP-EP-04 (37-41 ft bgs; -8.9 to -12.9 MSL)	MEG <sup>(a)</sup>	MCL <sup>(b)</sup>
<b>VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (<math>\mu\text{g/L}</math>)</b>									
1,1,1-Trichloroethane	(<5U)	5J	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	200	200
1,1,2,2-Tetrachloroethane	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	---
1,1,2-Trichloroethane	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	3	5
1,1-Dichloroethane	(<5U)	7	(<5U)	2J	(<5U)	(<5U)	(<5U)	70	---
1,1-Dichloroethene	(<5U)	5	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	7	7
1,2-Dichloroethane	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	5	5
Acetone	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	---	---
Benzene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	5	5
Carbon disulfide	(<5U)	(<5U)	(<5U)	(<5U)	1J	(<5U)	2J	---	---
Chloroform	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	100
Ethylbenzene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	700	700
Methylene chloride	(<5U)	2J	3J	(<5U)	(<5U)	(<5U)	(<5U)	---	5
Tetrachloroethene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	3	5
Toluene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	1,400	1,000
Total 1,2-Dichloroethene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	70	70
Total xylenes	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	600	10,000
Trichloroethene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	5	
<p>(a) Maximum Exposure Guideline (MEG) obtained from State of Maine Department of Human Services, Revised Maximum Exposure Guidelines, memorandum dated 23 October 1992. Dashes (---) indicate no MEG applicable.</p> <p>(b) Maximum Contamination Level (MCL) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1994). Dashes (---) indicate no MCL applicable.</p> <p>NOTE: bgs = Below ground surface; MSL = Mean sea level.  J = Estimated concentration below detection limit; DUP indicates duplicate sample.  Only those analytes detected in at least one of the samples, and the contaminants of concern listed in the LTMP (ABB-ES 1994), are shown on this table.  Results in bold indicate concentrations above primary Federal MCL and/or State MEG. Trip blank QT1 (16 October 1998) contained 3J <math>\mu\text{g/L}</math> of acetone; no VOC were detected in trip blank QT2 (28 October 1998).</p>									

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Analyte	DP-EP-05 (22-26 ft bgs; -12.1 to -16.1 MSL)	DP-EP-06 (3-7 ft bgs; 10.7 to 6.7 MSL)	DP-EP-06 (39-43 ft bgs; -25.3 to -29.3 MSL)	DP-EP-07 (12-16 ft bgs; -1.0 to -5.0 MSL)	DP-EP-07 DUP (12-16 ft bgs; -1.0 to -5.0 MSL)	DP-EP-07 (38-42 ft bgs; -27.0 to -31.0 MSL)	DP-EP-07 (51-55 ft bgs; -40.0 to -44.0 MSL)	Rinsate	MEG <sup>(b)</sup>	MCL <sup>(c)</sup>
<b>VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)</b>										
1,1,1-Trichloroethane	<b>3,000D</b>	(<1U)	<b>1,300D</b>	(<1U)	(<1U)	<b>2,600D</b>	(<1U)	200		200
1,1,2,2-Tetrachloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---		---
1,1,2-Trichloroethane	<b>4</b>	(<1U)	<b>2</b>	(<1U)	(<1U)	<b>3</b>	(<1U)	3		5
1,1-Dichloroethane	43E	(<1U)	26	(<1U)	(<1U)	53	(<1U)	70		---
1,1-Dichloroethene	<b>270D</b>	(<1U)	<b>180</b>	(<1U)	(<1U)	<b>240D</b>	(<1U)	7		7
1,2-Dichloroethane	<b>8</b>	(<1U)	<b>4</b>	(<1U)	(<1U)	<b>4</b>	(<1U)	5		5
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---		---
Benzene	1	(<1U)	(<1U)	(<1U)	(<1U)	2	(<1U)	5		5
Carbon disulfide	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---		---
Chloroform	2	(<1U)	(<1U)	(<1U)	(<1U)	1	(<1U)	---		100
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	700		700
Methylene chloride	<b>22</b>	(<1U)	<b>6</b>	(<1U)	(<1U)	<b>12</b>	(<1U)	---		5
Tetrachloroethene	<b>14</b>	(<1U)	<b>5</b>	(<1U)	(<1U)	<b>21</b>	(<1U)	3		5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400		10,000
Total 1,2-Dichloroethene	11	(<1U)	(<1U)	(<1U)	(<1U)	17	(<1U)	70		70
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600		100
Trichloroethene	<b>480D</b>	(<1U)	<b>160</b>	(<1U)	(<1U)	<b>720D</b>	(<1U)	5		5
NOTE: D = Analysis at a secondary dilution factor.										



- NOTES:**
1. CONCENTRATIONS IN ug/L
  2. GROUND-WATER SAMPLES COLLECTED 15-16, 27 AND 28 OCTOBER 1998
  3. FT BGS INDICATES FEET BELOW GROUND SURFACE.  
MSL INDICATES FEET RELATIVE TO MEAN SEA LEVEL.

- LEGEND**
- ⊕ MONITORING WELL LOCATION
  - ⊕ DIRECT-PUSH GROUND-WATER SAMPLE LOCATION
  - ⊕ PIEZOMETER LOCATION
  - ⊕ EXTRACTION WELL LOCATION

DWG. FILE No. F:\CAD\2960047\ANNUAL\EP-DPVOC.DWG

<b>EA</b> <sup>®</sup> EA ENGINEERING, SCIENCE, AND TECHNOLOGY			NAVAL AIR STATION BRUNSWICK, MAINE		DIRECT-PUSH GROUND-WATE ANALYTICAL RESULTS		
PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT NO	FILE No.
PLN	SYC	SYC	PLN	1" = 400'	8 DEC 98	29600.47	ep-dpvoc

**RESTORATION ADVISORY BOARD MEETING  
NAVAL AIR STATION, BRUNSWICK, MAINE  
21 JANUARY 1999**

**SUMMARY OF MONITORING EVENT 13 FIELD ACTIVITIES (NOVEMBER 1998)**

- ◆ Monitoring Event 13 was completed between 9 and 27 November 1998.
- ◆ Gauging and sample locations included those specified in the Draft LTMP.

**SITES 1 AND 3**

- ◆ Gauging locations included 23 monitoring wells, 2 extraction wells, and 5 EP-series piezometers, as per the Draft LTMP.
- ◆ 8 of 8 monitoring wells were sampled, including new well MW-240.
- ◆ 4 of 4 seep and 5 of 5 seep sediment samples were collected.
- ◆ 4 of 6 surface water samples were collected. Two new surface water sample locations (SW-15 and SW-16) are being sampled as part of another program, therefore, no LTMP samples were collected.

**EASTERN PLUME**

- ◆ Gauging locations included 44 monitoring wells, 6 extraction wells, 10 P-series piezometers, 15 EP-series piezometers, and 6 stream gauge stations, as per the Draft LTMP.
- ◆ 26 of 26 monitoring wells and 3 of 3 P-series piezometer ground-water samples were collected, including 5 new wells (MW-330 through MW-334).
- ◆ 5 of 6 extraction wells were sampled (EW-4 is offline). GWETS influent and system effluent samples were collected.
- ◆ 5 of 5 new surface water samples were collected (SW-10 through SW-14). See attached table for results.
- ◆ Ground-water samples were collected from 7 direct-push points (DP-EP-01 through DP-EP-07).

**SITE 9**

- ◆ Gauging locations included 16 monitoring wells and 2 stream gauge stations gauged for water table elevations, as per the Draft LTMP.
- ◆ 9 of 9 monitoring wells were sampled.
- ◆ 1 of 1 surface water sample was collected.
- ◆ 1 of 1 seep sample was collected.

**RESTORATION ADVISORY BOARD MEETING  
NAVAL AIR STATION, BRUNSWICK, MAINE  
21 JANUARY 1999**

**SURFACE WATER SAMPLE RESULTS  
EASTERN PLUME**

Analyte	SW-10	SW-11	SW-12	SW-13	SW-13 DUP	SW-14
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Methylene chloride	0.5JB	(<1U)	(<1U)	(<1U)	(<1U)	2B
Trichloroethene	1B	2B	3B	2B	2B	3B
Tetrachloroethane	(<1U)	(<1U)	0.6J	(<1U)	(<1U)	0.5J
Ethylbenzene	(<1U)	(<1U)	0.9J	(<1U)	(<1U)	0.6J
Total Xylenes	(<1U)	(<1U)	5	(<1U)	(<1U)	1
Carbon Disulfide	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.6J
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.7J
1,2-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1
1,3-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1
1,4-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
NOTE: VOC by EPA Method 8260 ( $\mu\text{g/L}$ ). U = Not detected. Sample quantitation limits are shown as (<___U). B = Analyte detected in associated method blank. J = Estimated concentration below detection limit.						